DOCUMENT RESUME

ED 256 115 EC 172 513

AUTHOR Gickling, Edward E.
TITLE Operationalizing Academic Learning Time for Low Achieving and Handicapped Mainstreamed Students.
PUB DATE Oct 84
NOTE 16p.; Paper presented at the Annual Meeting of the Northern Rocky Mountain Educational Research Association (2nd, Jackson Hole, WY, October 4-6,1984).
PUB TYPE Reports - Research/Technical (143) -- Guides - Non-Classroom Use (055) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Curriculum Development; *Disabilities; Elementary Secondary Education; *Low Achievement; *Mainstreaming; Models; Student Evaluation; *Teaching Methods; *Time on Task

ABSTRACT

The paper reviews findings and implications of curriculum based assessment (CBA), an approach focusing on collecting, interpreting, and using data to help lower achieving students have opportunities for success in mainstreamed settings. An instructional delivery model is presented to guage the probability of task success and provide a structure for controlling the difficulties encountered by a teacher in deciding what and how to teach. Three performance levels of student functioning are proposed: frustrational level, instructional level, and independent level. Percentages of challenge provided for the instructional level constitute a manageable set of criteria to evaluate the suitability of students' assessment. Studies are cited to illustrate the use of the model with attention deficit disordered and low achieving students. (CL)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED256115

# Operationalizing Academic Learning Time for Low Achieving And Handicapped Mainstreamed Students

by

Edward E. Gickling, Ph.D.

Several years ago, partly by training and partly by chance, I ventured into a line of study which has become commonly known as Curriculum Based Assessment. This tag or title, however, is somewhat misleading, since CBA's orientation is really upon how to collect, interpret, and use data in order to impact directly upon instruction. Its focus has been on providing help for those who are unable to keep pace with the routine instruction offered through developmental programs -- instruction which moves too fast and demands too much in relation to their existing skills. This focus has led to an equally important concern, that of providing low achieving and handicapped mainstreamed youngsters with similar types of learning conditions enjoyed by their more successful classroom peers. This statement is not to imply that lower achieving students will be able to function at the same ability levels as their average and above average peers, but instead that they will have similar opportunities for success in relationship to their own entry skills.

In pursuing this approach, it became important to know more about the learning conditions and particularly about the daily performance patterns of successful students. Surely, they do not all perform at 100 percent efficiency 100 percent of the time. Therefore, an initial task was to determine what exactly represented a realistic picture of successful performance and to quantify it in order to use it as a guage for controlling instruction for less than successful students.

EC175573

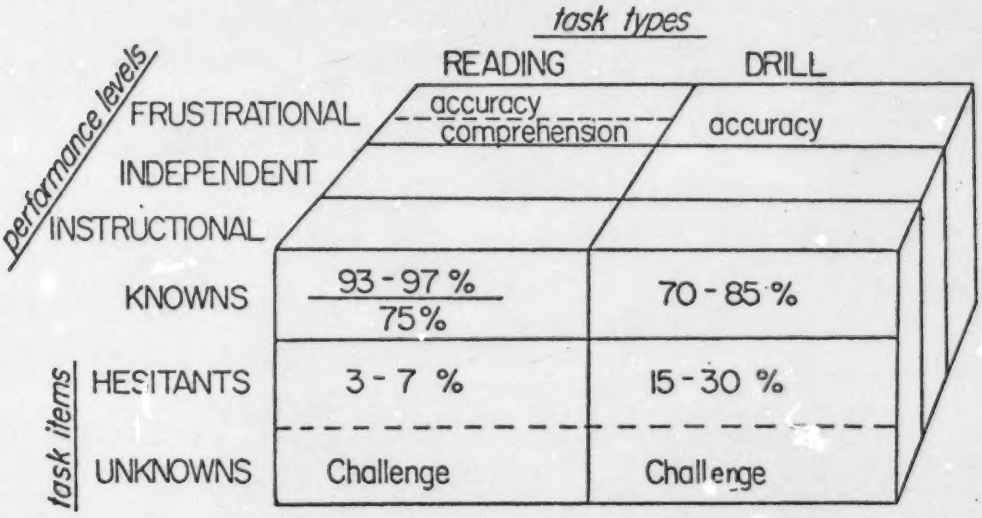
"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Edward Gickling
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

While investigating this question, you can imagine the elation I felt upon reading Time to Learn (Denham and Lieberman, Edts., 1980). Here was a highly publicized and significant work which paralleled and reinforced many of my own professional interests and efforts. The Beginning Teacher Evaluation Study was particularly meaningful, because it resulted from numerous observations of classroom practices of teachers and their successful elementary school age students. An analysis of these observations had led to a more direct way of assessing student performance and of inferring academic achievement than waiting to administer year-end normative tests. Those of you who have already been introduced to their direct measurement concept know of it as "Academic Learning Time," or better still "High ALT" as opposed to medium and low ALT. This kind of optimal learning/performance condition was defined as "The amount of time a student spends in relevant content that he or she can perform with high success" (p. 8 ). In other words, high ALT represents a condition wherein students have a good grasp of relevant learning tasks while making only occasional errors. This does not imply, however, that high success requires little effort, but rather that students possess the necessary entry skills, motivation, and persistence to reach a successful conclusion for each learning task.

Each of us probably has different perceptions about the meaning, application, and measurement of ALT. Certainly my views of ALT do not exactly coincide with those offered by the Far West Lab. But then too, I think the concept of ALT is broad enough to allow some diversity among various perspectives. Therefore, I would like to share with you my perspective on how high ALT can be made available to low achieving and mainstreamed handicapped students with some accompanying research to support this position.

Believing that more objectivity could be brought to the learning situation by teachers concentrating upon the product of effective teaching rather than the process, I developed an Instructional Delivery Model which capitalized upon the theme of continuous student-task success. Its purpose was to provide a visual method for guaging the probability of task success and also to provide a structure for controlling the difficulties encountered by the teacher in deciding what to teach and how it was to be presented.

INSTRUCTIONAL DELIVERY MODEL




According to the model, every instructional task has three essentials; the type of task, the number of items in the task, and the student's performance on the task. The first two are clearly under the control of the teacher, whereas the last is contingent upon the student's familiarity with the content or specifically the task items. For the sake of convenience, instructional tasks are divided into two types - "Reading" and "Drill". Reading refers only to obtaining meaning from print, as in reading a story. Drill includes the clustering of all other assignments. All forms of computational tasks, study questions, writing, spelling, and

even the subskills areas of reading: e.g. phonics, word attack procedures, and even sight word recognition, etc., are included in the category of drill. These two terms were chosen because of (1) the apparent emphasis that teachers give these tasks in the form of instructional time, and (2) because of the differences in percentages that each type of task requires for student success.

The key to this direct delivery strategy is the ability to identify and control task difficulty across various curricular assignments relative to each student's need. Individual assignments are preevaluated and altered when necessary to conform to a given set of criteria - or ratios of known to challenging items per task. (An item is the smallest complete unit of a task; i.e. a letter, a sound, word, number, fact, etc., depending upon the nature of the task. An item of challenge is either an unknown or a hesitant response). Instructional delivery, therefore, becomes basically a ratio activity, meaning a ratio of known information for every task compared to a percentage of challenge for every task. The ratios used in the model represent the general degree of success achieved by students at various levels of performance. These levels and ratios are:

(1) Frustrational level - assignments containing less than 70% of known items during drill activity and less than 90% during reading activity.

(2) Instructional level - a range between 70% and 85% of known items for drill activity and between 93% and 97% of known items for reading assignments. The range of challenge for these two types of activitites represent 15% to 30% to 7% respectively.

(3) Independent level - assignments that contain more than 90% of known items on drill activity and more than 97% of known items in reading.

The concepts of independent, instructional, and frustrational levels have been with education for nearly three decades and are still as applicable today as they were when first introduced. Experience has shown that students profit most when materials or learning tasks are on an instructional level - meaning that the items of each task are sufficiently familiar yet provide the right measure of challenge to ensure an optimum learning situation. It has also shown that some performance on an independent level is desirable; but under independent conditions neither assignments nor teacher assistance are used to full advantage. Of course, assignments which produce frustrational learning situations are to be avoided. These three levels represent the degree of appropriate "match" or "mismatch" between the skills of the student and the learning demands of the task. (Gickling and Havertape, 1981).

By applying the delivery model, all new teaching decisions are restricted to the percentages outlined in the margins of challenge for the instructional level. In simpler terms, this means that the sequence of instruction for each task, or the new information to be taught, should not exceed 3% to 7% in reading with a minimum of 75% comprehension, and 15% to 30% in drill with a minimum of 70% correct. These percentages constitute a manageable set of criteria to evaluate the suitability of students assignments. As such, they can provide clues to teachers concerning the inappropriateness of certain assignments without penalizing the student with tasks which are too hard. Also by knowing in detail what the student can do, it is now possible to preassess future assignments, keeping some, modifying

some, and discarding others so that an instructional level can be maintained for the low achieving and mainstreamed student. By approaching the "match" in this typical, systematic way, these students can consistently improve over time.

The effects of this type of approach on the general performance of our poor functioning students can be seen in the following figure. Figure 1 represents the results of a study (Gickling and Armstrong, 1978) which investigated the effects of three stages of instructional manipulation on first and second grade students who were functioning at a frustrational level. The study consisted of 21 one-hour teaching sessions held on a Monday, Wednesday and Friday schedule over a seven week period. The first six sessions were devoted to collecting baseline data, followed by a one hour student assessment phase. The remaining 15 sessions were equally divided into frustrational, instructional, and independent phases. All assignments were pre-prepared for each individual student to reflect the ratio of known to challenging items relative to each assigned phase. Measures of on-task, task-completion, and task-comprehension behaviors were recorded across baseline, frustrational, instructional and independent conditions.

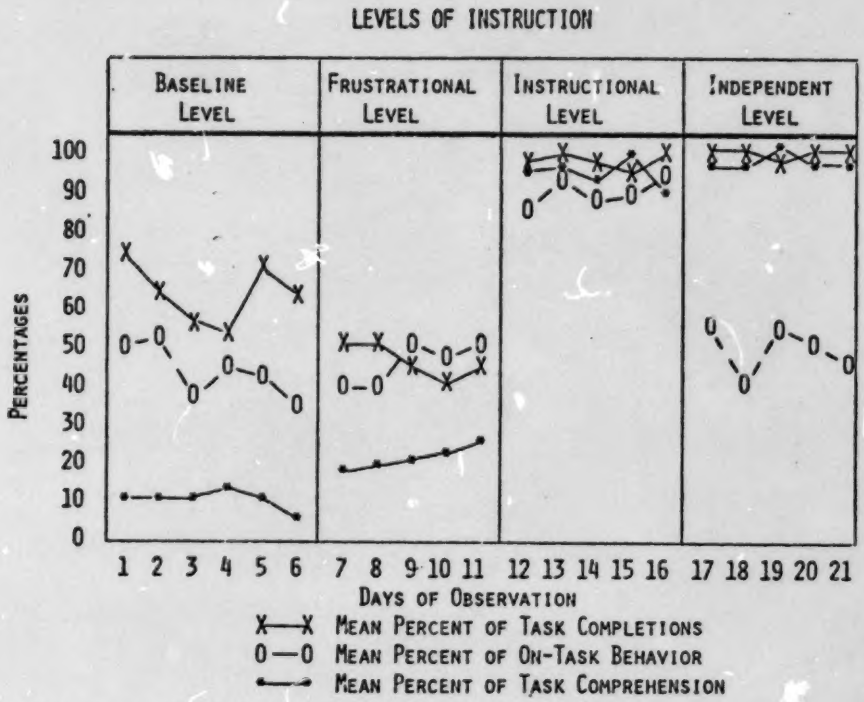



FIG. 1. MEAN PERCENTAGES OF TASK COMPLETION, TASK COMPREHENSION, AND ON-TASK BEHAVIORS FOR EIGHT 1ST AND 2ND GRADERS ACROSS BASELINE, FRUCTRATIONAL, INSTRUCTIONAL, AND INDEPENDENT LEVELS OF INSTRUCTION.

The results showed predictable patterns of performances related to the three levels of instructional difficulty. They also supported an important educational concept, that of the existence of a curvilinear relationship between learning and instructional difficulty. As the levels of difficulty changed within student assignments to conform to the three levels of difficulty, the percentages of task-completions, task-comprehension, and on-task behaviors of the subjects also changed. When assignments were too difficult, the percentages of the three behaviors were relatively low. When assignments were at an independent level, comprehension and task-completions came too easy, leaving large percentages of off-task behavior. However, when assignments were within the appropriate ratios for students to function on an instructional level,

the percentages of task-completion, task-comprehension, and on-task behavior were consistently high. In other words, the condition of high ALT was maintained.

Figure II represented a more complexed study (Thompson, Gickling and Havertape, 1983) investigating the effects of two different treatments, medication and controlled instruction, on the behaviors of one groups of Attention Deficit Disordered (ADD) sujects and a separate group of Low Achieving (LA) subjects. A third group of Average Achieving (AA) subjects merely acted as a standard from which to compare patterns of acceptable classroom performance. Only the ADD subjects received medication and placebo; both ADD and LA subjects received regular and controlled instruction; no treatment was given to the AA subjects. In the case of the ADD subjects, only the attending physicians knew of the medication/placebo schedule. As a double blind study, the conditions were arranged with an equal number of observations for medication and placebo intervals.

There were 18 elementary school children from six different classrooms involved in the study. This number was limited since we were able to gain the necessary permissions from parents, physicians, and teachers for only 6 ADD subjects. In each of the six participating classrooms, 2 other students, an LA and AA peer, were also selected for participation by each respective classroom teacher. The low achievers were selected because of their inadequate classroom achievement in relationship to their peer group. The average achievers were selected from a random sample of students achieving at grade level; those who were considered gifted or handicapped were ineligible. The study was conducted over an eight week period.

In collecting the data, the same procedure was used in both studies, I.E., special education majors were used in both studies; i.e., special education majors were trained as behavioral observers. After they had reached high interrater agreement on the three task related behaviors, they functioned as independent observers recording their data during actual teaching situations. The particular behaviors that were being observed and recorded, as well as an ungraded example of the recording form were as follows:

On-Task: On-Task scores represented the percentages of time the subject was actually engaged in task-related behavior such as attending to his/her assignments. Scores were obtained by taking one 20-second sample per minute for a total of 20 observation frames per second.

Task-Completion: Completion scores were determined by the number of items attempted whether right or wrong. These scores represented the total number of response efforts made by each subject per task. The scores were not used to judge the subject's comprehension but merely measured the number of attempts over the total number of responses required per task.

Task-Comprehension: Comprehension scores were determined by the sample items correctly identified and/or understood within each assignment. In each case, meaning or understanding of the component parts was the major factor for determining comprehension. Comprehension scores were obtained by directly questioning each subject on assigned tasks.

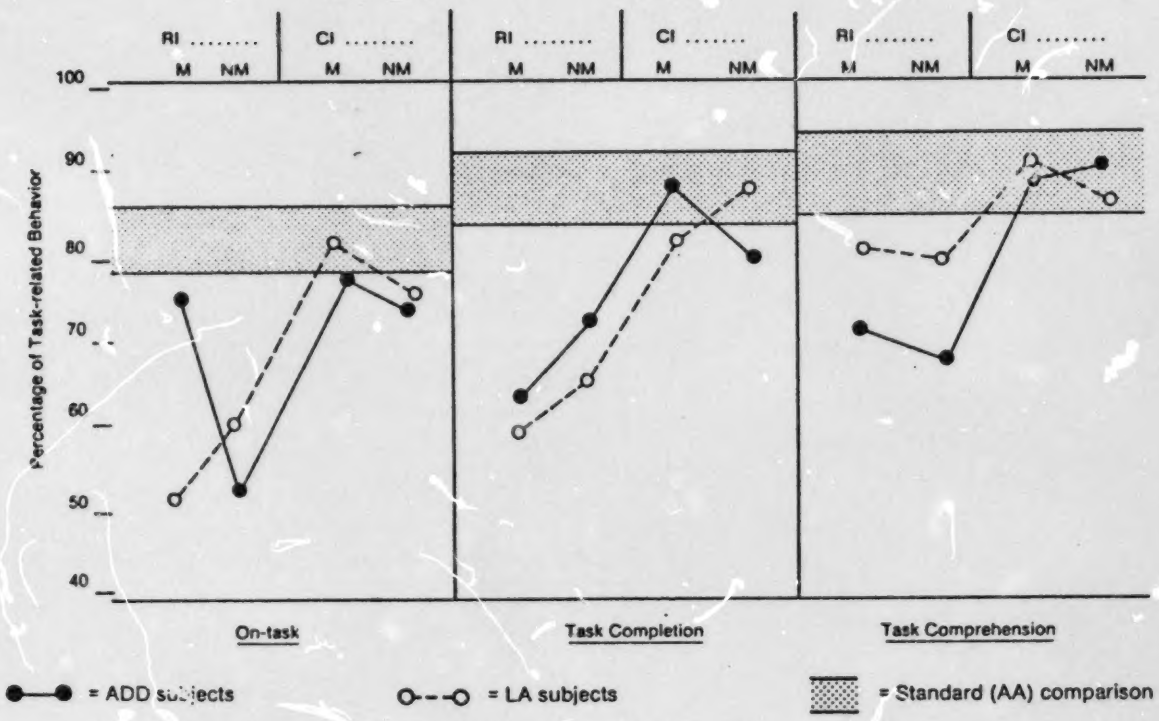



**Figure 2.** *Total mean score comparison for on-task, task completion, and task comprehension for ADD and LA subjects across Regular and Controlled Instruction.*

Results of the study indicated that both ADD and LA subjects showed considerable similarity on all three task related behaviors, with the exception of on-task performance for the ADD subjects on medication. There were no significant differences in the performance patterns of these two groups of subjects with this one exception under regular instruction. Interestingly enough, there were no significant differences between the mean performance patterns of these two groups of subjects under controlled instruction conditions either, except that the mean scores had risen substantially for both groups. Their improvements were such during controlled

instruction that no significant differences were noted between their performances and those of their average achieving peers. However, as mentioned previously, these results are not to imply that ADD and LA subjects were now performing at ability levels equal to their AA peers, but rather that their percentages of attending, task attempts, and degree of task understanding were commensurate. These results appear to support the concept that it is the curriculum, the day-to-day instructional match between the child and the actual learning task at hand, that is most conducive to achieving high rates of performance or high ALT.

## ALT OBSERVATION FORM

Observer Code # _____ Sheet # _____

Site Code # _____ Teacher Code # _____ Subject Matter _____ Time _____ Date _____.

| Student Code # | Name | Group Size | On-Task Observation Frames | On-Task Rates | Completion Rates | Comprehension Rates |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Comments:



13

14

Group: T-total, S-small, I-individual

Coding: 1-on-task, 0-off-task, N-not applicable

References

Denham, C. and Lieberman, A. Edts. Time To Learn, U.S. Department of Education, National Institute of Education, Washington, D.C. May, 1980.

Gickling, E.E. and Havertape, J.F. Curriculum Based Assessment. In J.A. Tucker, Edt. Non-Test Based Assessment. A project of the National School Psychology Inservice Training Network, University of Minnesota, Minneapolis, Minnesota, 1981.

Gickling, E.E. and Armstrong, D.L. Levels of Instructional Difficulty as Related to On-Task Behavior, Task Completion, and comprehension. Journal of Learning Disabilities 1978, 11, 559-566.

Thompson, V.P., Gickling, E.E. and Havertape, J.F. The Effects of Medication and Curriculum Management on Task-Related Behaviors of Attention Deficit Disordered and Low Achieving Peers. Monograph in Behavioral Disorders: Severe Behavior Disorders of Children and Youth, CCBD, Arizona State University, Summer 1983.

Paper presented at the Annual Meeting

of the

Northern Rocky Mountain Educational Research Association

(2nd, Jackson Hole, WY, October 4-6, 1984)